



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Response
#13
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Applicant: Julian Van Erlach *et al.*

Examiner: Barry Pass

Serial No.: 09/727,718

Art Unit: 3737

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For: METHOD FOR INSERTING A
MICRODEVICE OR A NANODEVICE INTO A
BODY FLUID STREAM

Commissioner For Patents
Washington D.C. 20231

Sir:

This paper is being filed in response to the office Action mailed July 24, 2003.

Reconsideration and allowance are respectfully requested in view of the Amendments and

Remarks below.

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TECHNOLOGY CENTER R3700

REQUEST FOR RECONSIDERATION

1. (PREVIOUSLY AMENDED) A method comprising:

— proving at least one of a microdevice and a nanodevice, having at least one circuit feature thereon;

encapsulating at least one of said microdevice and nanodevice, wherein said

5 encapsulating is not within a white blood cell; and

inserting at least one of said microdevice and said nanodevice into a fluid stream within a body.

2. (PREVIOUSLY AMENDED) The method of claim 1, further comprising the step of inserting at least one of said microdevice and said nanodevice into a cell.

10 3. (PREVIOUSLY AMENDED) The method of claim 2, further comprising the step of inserting at least one of said microdevice and said nanodevice into a cell, wherein said cell is a red blood cell.

4. (PREVIOUSLY AMENDED) The method of claim 2, wherein the step of encapsulation further comprises the step of encapsulating a substrate into said cell via at least one of reversible osmotic lysis, electroporation, microfine needle injection, and particle gun injection.

5. (PREVIOUSLY AMENDED) The method of claim 1, further comprising the step of inserting at least one of said microdevice and nanodevice into a biological member, wherein said biological member is selected from the group consisting of a blood cell, lipid molecules, a liver cell, a nerve cell, a skin cell, a bone cell, a lymph cell, an endocrine cell, a circulatory cell, and a muscle cell.

6. (PREVIOUSLY AMENDED) The method of claim 1, wherein the step of providing at least one of said microdevice and said nanodevice further comprises providing at least one of said nanodevice and said microdevice selected from the group consisting of a diagnostic system, a transmitter, a receiver, a battery, a transistor, a capacitor, and a detector.

7. (PREVIOUSLY AMENDED) The method of claim 1, wherein at least one of said nanodevice and said microdevice is encapsulated within a biological member.

8. (PREVIOUSLY AMENDED) The method of claim 1, further comprising the step of encapsulating at least one of said microdevice and nanodevice into a biological member, wherein said biological member is one of a red blood cell and lipid molecules.

9. (PREVIOUSLY AMENDED) The method of claim 1, further comprising a step of selecting a substrate for at least one of said nanodevice and said microdevice from the group consisting of Gallium Arsenide, silicon, and silicon oxides.

11. (PREVIOUSLY AMENDED) The method of claim 1, wherein the step of providing at least one of said microdevice and said nanodevice, further comprises providing at least one of said nanodevice and said microdevice of a resonance type nanodevice.

12. (PREVIOUSLY AMENDED) The method of claim 1, further comprising detecting at least one of said nanodevice and said microdevice by one of electron paramagnetic resonance (EPR), electron spin resonance (ESR) and nuclear magnetic resonance (NMR).

13. (PREVIOUSLY AMENDED) The method of claim 12, wherein the step of detecting further comprises EPR detecting molecules selected from the group consisting of free radicals, odd electron molecules, transition metal complexes, lanthanide ions and triplet state molecules.

14. (PREVIOUSLY AMENDED) The method of claim 1, further comprising a step of selecting a material for at least one of said nanodevice and said microdevice from the group consisting of phosphorus, arsenic, sulfur, germanium and organic free radicals.

15. (PREVIOUSLY AMENDED) A method comprising:

providing at least one of a nanodevice and a microdevice, having at least one circuit feature thereon;

encapsulating at least one of said microdevice and said nanodevice, wherein said encapsulating is not within a white blood cell; and

inserting at least one of said nanodevice and said microdevice in a blood stream within a

body.

16. (PREVIOUSLY AMENDED) The method of claim 15, further comprising a step of chemically modifying at least one of said nanodevice and said microdevice to prolong vascular retention, prevent immunologic detection, or prevent unwanted endocytosis by cells.

17. (PREVIOUSLY AMENDED) The method of claim 15, further comprising a step of chemically modifying the at least one of said nanodevice and said microdevice with an organo hydroxyl.

18. (PREVIOUSLY AMENDED) The method of claim 17, further comprising the step of chemically modifying includes selecting said organo hydroxyl group from the group consisting of poly (ethylene glycol), methoxypoly (ethylene glycol).

19. (PREVIOUSLY AMENDED) The method of claim 15, wherein the step of encapsulating further comprising attaching a lipid anchor to at least one of said nanodevice and said microdevice with an organo hydroxyl.